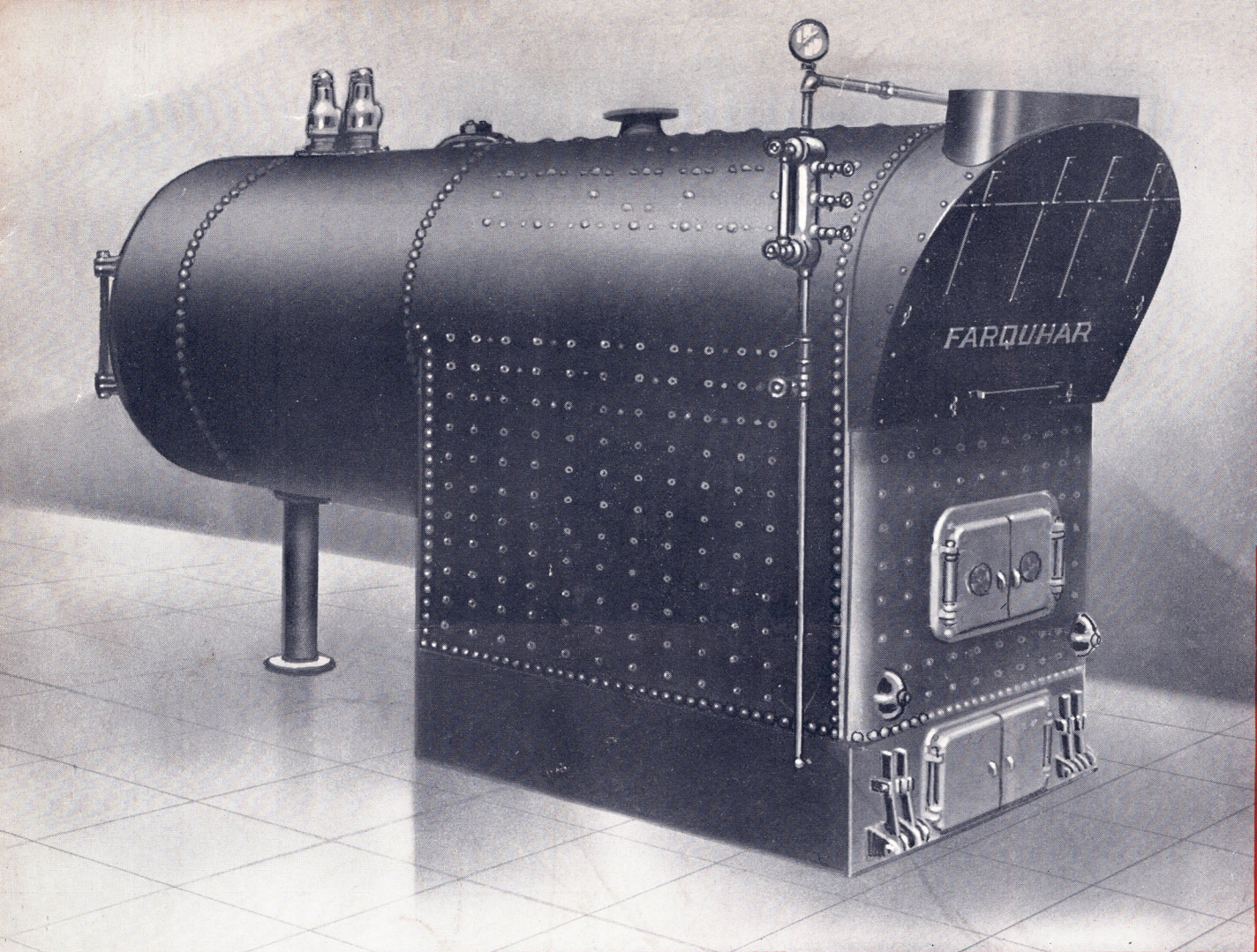




FARQUHAR

TYPE "R"

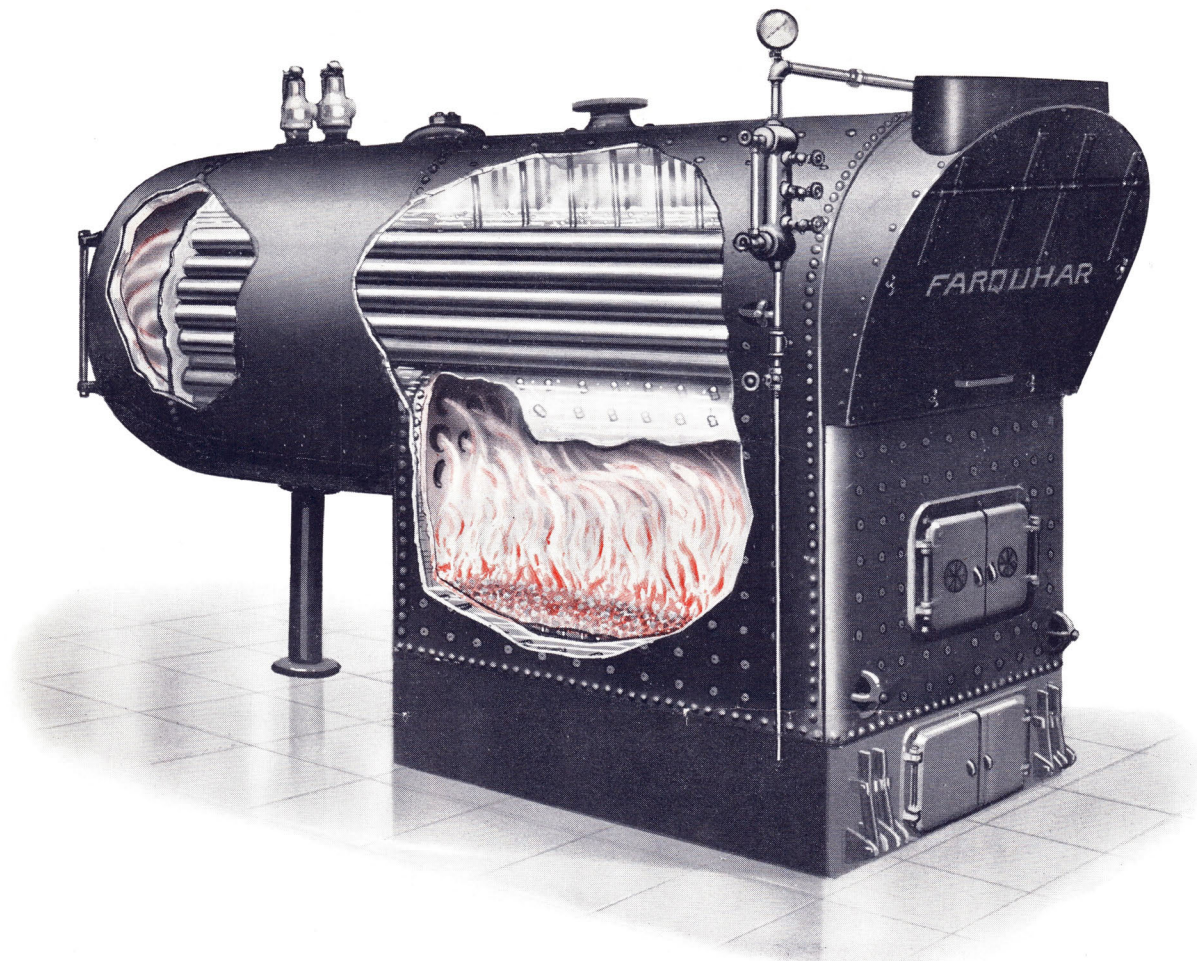
**RETURN FLUE-FIREBOX
BOILER**

EFFICIENT

ECONOMICAL

A. B. FARQUHAR CO., Limited
YORK, PA.

BULLETIN No. 437



Farquhar Type "R" Return Flue Firebox Boiler

- - - backed by 65 years of Experience

The "R" Series Boiler is a self-contained unit with the efficiency and all of the advantages of a brick set return tubular boiler, but with the added feature that it is lower in cost and can be moved as a complete unit when desired.

FUEL—Can be efficiently fired with coal either by hand or mechanical stokers, also fuel oil.

BOILER—This boiler is built for working pressures of 100 lbs. Higher pressures up to 150 lbs. can be built as ordered. Ample grate area and large effective heating surface assure more efficient combustion and an even distribution of heat through the boiler.

DESIGN—Is safe and durable, occupies little space, is economical of fuel, and is a rapid steamer. The heat in the furnace is utilized for heating water in the water walls and

not for heating fire brick or other refractory material and, therefore, more steam is made per pound of coal.

FURNACE—Is large, providing the important feature of having plenty of height over the grates and is carefully proportioned to give the best condition for successful burning of the fuel; and with the arrangement of the tubes makes the Farquhar boiler very efficient and economical.

RETURN FLUE—The first pass of the heat is through the lower set of tubes to the refractory lined combustion chamber. The second pass is through the upper set of tubes to the stack, which is at the firing end of the boiler.

CLEANING—The facilities for cleaning the water space are ample, and it is far cheaper to keep the boiler clean from a maintenance standpoint than to replace burned-out refractory material. 43 H. P. boiler and larger have manholes.

FARQUHAR

Efficient ♦ Compact ♦ Easily Cleaned

POWER AND HEATING—A compact power and heating unit giving maximum results. This boiler is designed for generating steam for power. It is almost universal in its application for industrial plants, institutions, schools, hospitals, hotels, apartments, laundries, bottling plants, dairies, dry cleaners, florists; in fact wherever power is needed, and on account of its economy in fuel and the small space required to install, is well adapted to steam, hot water and vapor heating.

CONSTRUCTION—Materials used in the construction of Farquhar boilers meet the requirements of the American Society of Mechanical Engineers, which specifies the kind of material and thickness of the plates necessary. These are minimum requirements and are exceeded where the efficiency requires greater strength. The boiler is of riveted construction. Staying is done by means of direct stays, avoiding the massing of steel for the purpose of staying any part of the boiler. Crowfoot braces are used for the boiler heads.

TIGHT FITTING DOORS—Fire and ash doors are of ample size and the faces of all doors where necessary are ground to assure a tight fit when closed.

COMBUSTION CHAMBER—The rear combustion chamber is protected with heat resisting refractory material, fitted with two cast iron doors covering one opening, allowing easy access to all tubes. The front smoke box is all steel construction.

A. S. M. E. CODE INSPECTION—Farquhar boilers are built, inspected and tested under the supervision of an authorized insurance company inspector, and according to the A. S. M. E. Code requirements.

SHAKING GRATES—Adapted for bituminous coal, having 55% opening, 9/16" air space are always furnished unless otherwise specified. Air space can be less where fuel conditions demand a finer opening. We shake the grates in two or four banks, depending upon size of boiler.

INSULATION—Best results can be obtained by covering the boiler with asbestos, and when boiler is so covered you have an insulation equal to or better in efficiency than any other type on the market. We insulate boilers at extra price.

EQUIPMENT

BARE BOILER—Includes smoke box and door, fire doors, combustion chamber with doors and rear supports.

FITTINGS—Include safety valve, steam gauge with syphon, water column with gauge cocks and water glass and flue cleaner. (Blow-off valve furnished when ordered.)

BASE—Includes steel base with ash doors prepared to receive lever brackets for shaking grates.

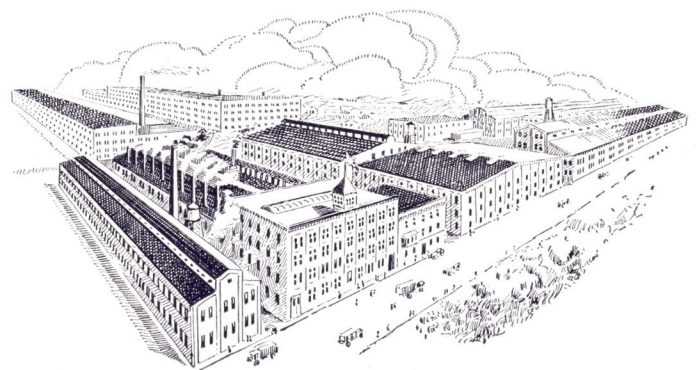
SHAKING GRATES—Include cast iron grates, grate rests and levers to operate, with lever brackets and supports for grate.

INJECTOR—Includes one check valve, three globe valves and piping.

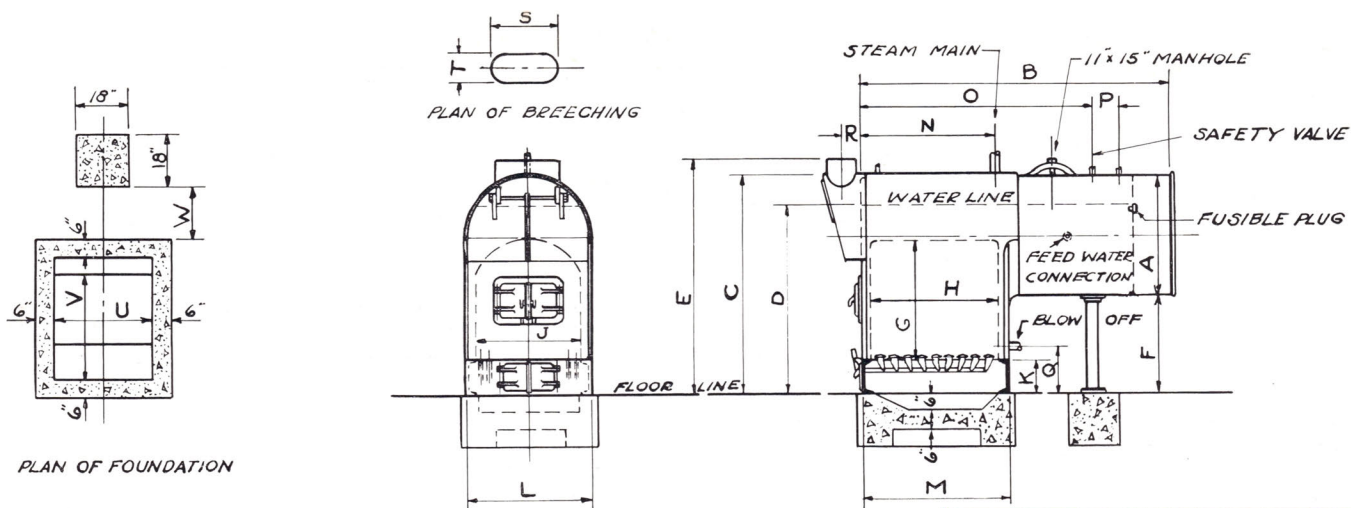
STACK—As per specifications.

ASH PIT FRONT—Includes a steel front plate with ash doors prepared to receive lever brackets for shaking grate.

ASBESTOS COVERING—Includes 1½" thick magnesia blocks and a No. 22 gauge steel cover with brass bands.



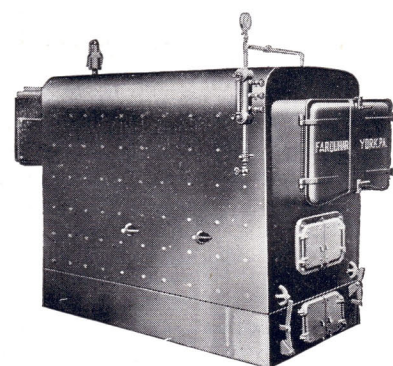
Plant of A. B. Farquhar Co., Limited, at York, Pa.



DIMENSION—FARQUHAR STYLE "R" RETURN FLUE—FIREBOX BOILER

BOILER NUMBER											
HAND FIRED	RATING STEAM RAD.-SQ.FT. HORSE POWER B.T.U. PER HOUR 1000'S	3500	4500	6000	7000	8500	10000	12500	15000	17500	20000
		25	32	43	50	61	72	89	107	125	143
		840	1080	1440	1680	2040	2400	3000	3600	4200	4800
OIL OR STOKER FIRED	RATING STEAM RAD. SQ.FT. HORSE POWER B.T.U. PER HOUR -1000'S	4250	5470	7290	8500	10330	12150	15180	18220	21250	24290
		30	39	52	61	74	87	109	130	152	174
		1020	1313	1750	2040	2479	2916	3643	4373	5100	5830
HEATING SURFACE SQ.FT.		250	322	429	500	608	715	893	1072	1250	1429
GRATE AREA SQ.FT.		11.4	14	16.3	18.1	21.2	22.3	27	298	32.5	35.4
A BOILER DIAMETER IN.		42	43	54	54	58	66	66	72	78	78
B BOILER LENGTH FT.-IN.		9-1 ¹ / ₄	9-6	10-3	10-11	11-4 ¹ / ₂	10-11 ¹ / ₂	12-5	13-0 ¹ / ₂	13-2	13-7 ¹ / ₄
C BOILER HEIGHT IN.		76 ³ / ₈	86	92 ¹ / ₂	92 ¹ / ₂	99 ¹ / ₂	107	109	112 ¹ / ₂	125 ¹ / ₂	128
D WATER LINE IN.		68 ³ / ₄	76	81	81	87	92 ¹ / ₂	94 ¹ / ₂	97 ¹ / ₂	110 ¹ / ₂	114
E BREECHING CONNECTION HEIGHT-IN.		81 ¹ / ₄	91	98 ¹ / ₂	98 ¹ / ₂	107 ¹ / ₂	115	117	120 ¹ / ₂	133 ¹ / ₂	136
F REAR STAND HEIGHT IN.		34	37 ¹ / ₂	38	38	41	40 ¹ / ₂	42 ¹ / ₂	40	47	49 ¹ / ₂
G FIRE BOX HEIGHT IN.		42	47	49 ¹ / ₂	49 ¹ / ₂	51 ¹ / ₂	55 ¹ / ₂	57 ¹ / ₂	56	65	67 ¹ / ₂
H FIRE BOX LENGTH IN.		45 ¹ / ₄	48	48 ³ / ₄	54 ¹ / ₄	60	54 ¹ / ₂	66	66	66	72
J FIRE BOX WIDTH IN.		36	42	48 ¹ / ₈	48 ¹ / ₈	51	59	59	65	71	71
K BASE HEIGHT IN.		12	12	12	12	15	15	15	15	18	18
L BASE WIDTH IN.		42	48	54	54	58	66	66	72	78	78
M BASE LENGTH IN.		51	54	55	61	67	61	73	73	73	79
N STEAM MAIN LOCATION FT.-IN.		3-11	4-2	4-3	4-9	5-1	4-8	5-8	5-8	5-8	6-1
O SAFETY VALVE LOCATION FT.-IN.		6-3	3-2	2-6	1-6	8-6	8-1	9-0	9-2	9-2	9-8
P SAFETY VALVE LOCATION FT.-IN.					1-0	10	1-0	1-0	1-0	1-0	1-0
Q BLOWOFF HEIGHT IN.		16 ³ / ₈	16 ³ / ₈	16 ³ / ₈	16 ³ / ₈	19 ¹ / ₄	19 ¹ / ₄	19 ¹ / ₄	19 ¹ / ₄	22 ³ / ₄	22 ³ / ₄
R BREECHING LOCATION IN.		6 ¹ / ₂	6 ¹ / ₂	6 ¹ / ₂	6 ¹ / ₂	9	9	9	9	10	10
S BREECHING LENGTH IN.		23	23	34	34	43	43	43	43	55	55
T BREECHING WIDTH IN.		10	10	11	11	15	15	15	15	17	17
U ASH PIT WIDTH IN.		34	40	48	48	50	58	58	64	70	70
V ASH PIT LENGTH IN.		37	40	41 ¹ / ₂	47	53	47	59	59	59	65
W REAR STAND LOCATION IN.		19	19 ¹ / ₂	27	29	30 ¹ / ₂	29 ¹ / ₂	35	35 ¹ / ₂	38	37 ¹ / ₂
FURNACE VOLUM FROM GRATES CU.FT.		31	39	52	60.8	74	87	109	130.2	152	174
SIZE STEAM OUTLET IN.		2 ¹ / ₂	2 ¹ / ₂	3	3	3 ¹ / ₂	4	5	5	6	6
SIZE FEED IN.		³ / ₄	³ / ₄	1	1	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₂
SIZE BLOWOFF IN.		1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₂	2	2	2	2	2	2
NUMBER AND SIZE SAFETY VALVES											
100" W.P.		1-2"	1-2"	1-2 ¹ / ₂ "	2-2"	2-2"	2-2"	2-2"	2-3"	2-3"	2-3"
125" W.P.		1-2"	1-2"	1-2 ¹ / ₂ "	2-2"	2-2"	2-2 ¹ / ₂ "	2-3"	2-3"	2-3"	2-3"
150" W.P.		1-2"	1-2"	1-2 ¹ / ₂ "	2-2"	2-2"	2-2"	2-2 ¹ / ₂ "	2-3"	2-3"	2-3"
STACK DIAMETER IN.		18	20	22	24	26	28	30	32	32	34
STACK HEIGHT - MINIMUM FT.		40	40	40	40	50	50	50	50	60	60
SIZE FIREDOR IN.		12x18	12x24	12x24	12x24	12x24	12x24	12x24	12x24	12x24	12x24
ASBESTOS COVERING REQ'D SQ.FT.		140	170	205	215	240	265	295	325	370	385
SHIPPING WEIGHT 100" W.P. LBS		7450	8950	10950	11950	13900	15400	17900	20400	22400	24900
125" W.P. LBS		8450	10450	12450	13950	15900	17900	20400	23400	25900	28900
150" W.P. LBS		9450	11450	13900	15400	17400	19900	22400	25900	28400	31900

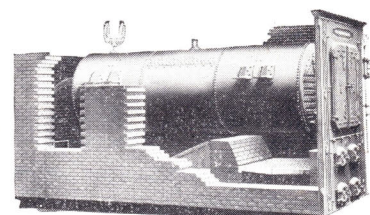
OTHER FARQUHAR BOILERS



"H. B. R." Welded Steel Heating Boiler



Vertical Tubular Boiler



H. R. T. Boiler